

Ousatonic Water Power Company: Dam and Canals
(Derby Hydroelectric Project)
CT Routes 34 & 108, one mile north
of Derby-Shelton Bridge
Derby, New Haven County
(Shelton, Fairfield County)
Connecticut

HAER No. CT-36

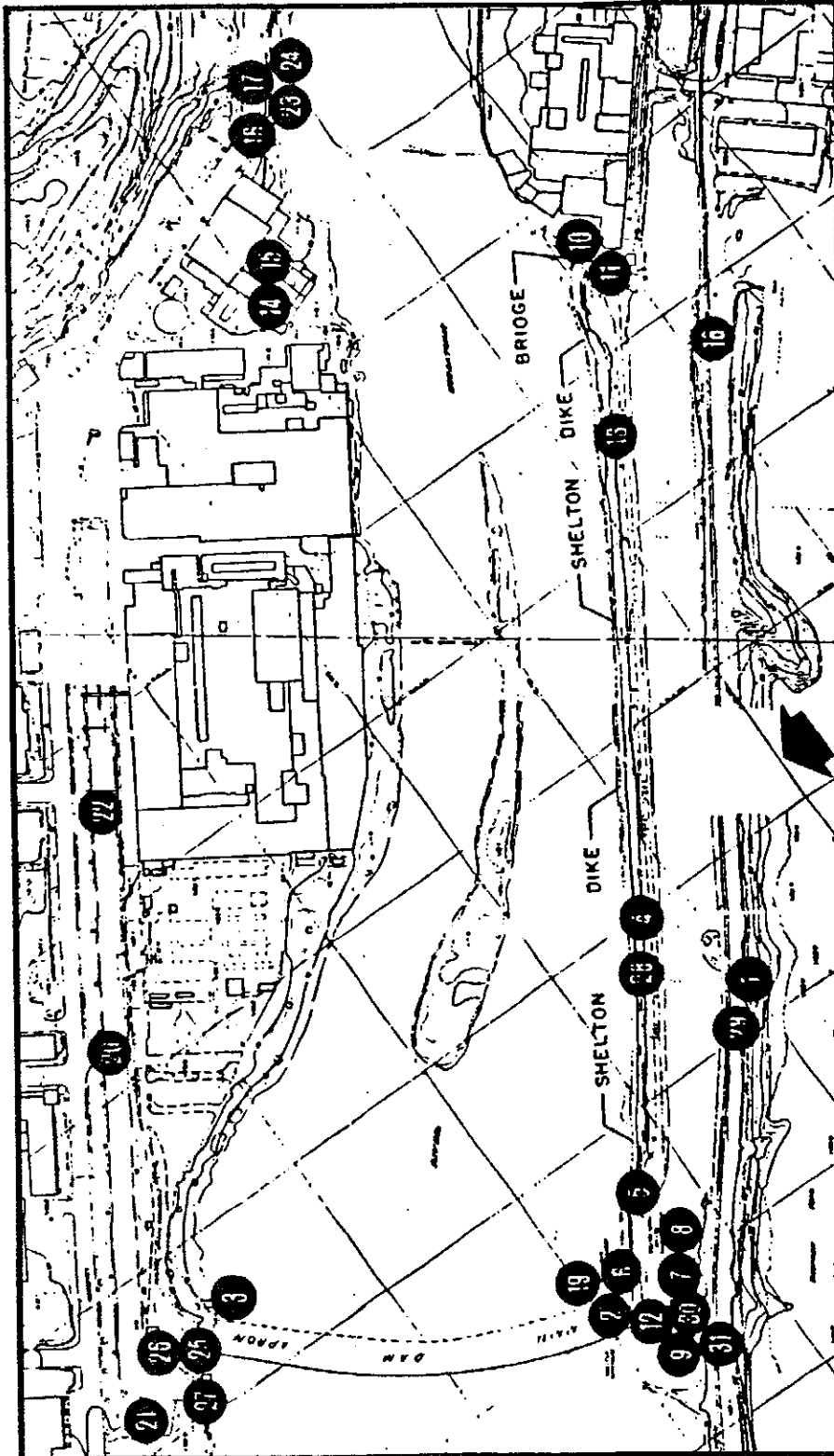
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION, NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

Key to Photographs
 Ousatonic Water Power Company:
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OUSATONIC WATER POWER COMPANY DAM AND CANALS
 DERBY DAM -- SHELTON CANAL -- DERBY CANAL

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HISTORIC AMERICAN ENGINEERING RECORD
HOUSATONIC WATER POWER COMPANY: DAM AND CANALS;
DERBY DAM, SHELTON CANAL, DERBY CANAL
(Derby Hydroelectric Project)

HAER No. CT-36

Location: CT Routes 34 & 108, one mile north of the Derby-Shelton Bridge extending southerly on both sides of the Housatonic River in Derby, New Haven County, and Shelton, Fairfield County, Connecticut.

Date(s) of Construction: 1870-1892

Engineer: W.E. Worthen, Engineer; Henry T. Potter, Superintendent; D.S. Brinsmade, Engineer 1891 reconstruction

Present Owner(s): McCallum Enterprises, Incorporated
805 Housatonic Avenue
Bridgeport, CT 06604

Present Occupant: Vacant

Present Use:

Significance: The waterworks of the Ousatonic Water Company, when combined with the Shelton mills and related urban development have local and statewide significance as a successful 19th century example of planned industrial development with the use of contemporary technological innovations in the harnessing of water power. Some components, such as the design for the fishway, were used for the first time in the U.S. The dams, canals and locks are strongly associated with local political, social and economic development.

Project Information: This documentation was undertaken in April, 1987 in accordance with a Cultural Resource Plan filed with the Federal Energy Regulatory Commission (FERC) on April 25, 1983, and agreed with the Connecticut State Historic Preservation Officer on August 4, 1986.

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Introduction

The Industrial Revolution in New England was fueled largely by water power. Growth of industry along river valleys depended upon the construction of dams and canals. The Housatonic River was the last of New England's major rivers to be harnessed for hydroelectric power. The Housatonic River dam between Shelton and Derby, like those that preceded it elsewhere in New England, brought about a rapid shift from dependence on agriculture and fishing industries to labor-intensive industrial development in the communities along the Housatonic River.

In 1870, the Ousatonic Water Co., using an immigrant labor force, constructed a solid masonry gravity dam across the Housatonic River in Connecticut. The dam stretched from the town of Derby to the village of Huntington, with canals running downstream parallel to the river on either side. Although the dam and canals are not considered significant landmarks in the history of engineering, their construction was catalytic in the development of the towns of Derby and Shelton, and in the development of industry along the Housatonic River Valley. The progress of the dam was closely monitored by local industrialists, fishermen, and legislators, and it was frequently the center of conflicts among these groups (Barber 1846; Orcutt and Beardsley 1880).

Development of the Ousatonic Water Power Company Dam and Canals

The town of Derby is well situated for commerce. It is located above the confluence of the Housatonic and Naugatuck Rivers in Connecticut, in a position to exploit and transport natural resources and manufactured goods. When the town was chartered in 1675, it was an important center of trade between white settlers and natives, and later between Connecticut and the West Indies. Derby began to industrialize in the first half of the nineteenth century. By 1836, the Borough of Birmingham between the Naugatuck and Housatonic Rivers contained several factories, including the Anson G. Phelps copper mill. These factories were run by water power from a canal channeled from the Naugatuck River (Barber 1846, 198).

In 1822, a group of local delegates appointed a committee to hire Benjamin Wright, the Chief Engineer of the Erie Canal, to assess the possibilities for a canal along the Housatonic River, for the purpose of transporting raw materials between Connecticut and Massachusetts. In April of 1822, Leman Stone of Derby and others filed a petition, and in May the Connecticut General Assembly granted a charter for the Ousatonic Canal, one of the first two canal companies in the state. Stocks were offered for subscription and in 1825 the Governor of Massachusetts was authorized to appoint three commissioners to assess the possibility of extending the proposed canal. However, the charter expired from its own limitations in July of 1827, and the canal was not built (Harte 1938). An attempt was made to renew the charter in 1838, but it was defeated by the influence of the powerful shad fishing industry upriver at New Milford. After the shad industry had forced changes in the height and location of the dam, the project was judged too expensive to be feasible by its promoters (Orcutt and Beardsley 1880, 396).

With the coming of the Housatonic River Railroad in 1840 and the Naugatuck

Railroad along the Naugatuck and Housatonic Rivers in 1849, the incentive to channel the Housatonic for transportation from the productive hinterlands became obsolete. As industry grew, however, and dams on other New England rivers were successfully built, the industrialists of Derby and Birmingham began to think of the Housatonic in terms of its potential as a power source. The Housatonic, which drained about two thousand square miles and which had a minimum average flow of five hundred cubic feet per second, was comparable in strength to the Connecticut and Merrimac Rivers, where dams had paved the way for the rapid industrial growth of the Massachusetts cities of Lowell and Holyoke (ibid. 404).

In 1863, a group of prominent Derby business men began buying up land and organizing a petition to build a dam between Derby and the rural farming and fishing community of Huntington (later Shelton) on the west bank of the Housatonic River. Contemporary accounts referred to the project with admiration for the scale of the undertaking. "There are few instances of a work of this kind conducted on so large a scale, and involving so immense an increase of manufacturing facilities" (Leffel 1874, 27). These were men who owned most of the industry in Derby and whose capital developed the town of Shelton after the dam was completed. Many were involved in major businesses which developed as a result of the Ousatonic Water Power Company. The group included:

Edward N. Shelton, after whom the town of Shelton was named. He was the founder of the Shelton Co. (tacks, bolts, and small nails) and the first president of the Birmingham National Bank.

William E. Downes, president of the Derby Savings Bank, treasurer of the Derby Silver Co., and a director of the Derby Gas Co.. He was also on the boards of the Birmingham Water Co. and the Birmingham National Bank.

D.S. Brinsmade, the engineer of the Housatonic Dam after 1871 and of the reservoirs of the Birmingham Water Co.. He was on the boards of the Birmingham National Bank, the Silver Plate Cutlery Co., and the Plumb Memorial Library.

Dr. John I. Howe, the founder of the Howe Manufacturing Co., the first company in the U.S. to manufacture pins. He was also on the boards of Wilcox and Howe (carriage and bicycle forgings) and the Derby Savings Bank.

David W. Plumb, the first president of the Silver Plate Cutlery Co., president of the Shelton Water Co., and on the boards of the Derby Savings Bank and the Star Pin Co. The Plumb Memorial Library, which was nominated for National Register listing, was named for him.

Also involved in the dam project were the brothers Amos H. and Charles B. Alling, who owned Paugassett Mills (woolen hosiery), Royal M. Bassett, president of the Birmingham Iron Foundry, and prominent local businessmen Thomas Elmes, Robert May, and Thomas Burlock (Gillespie 1896).

Careful plans were made for the use of the power which the dam would provide. Industry in Derby was expected to expand, and the agricultural town of Huntington was to be transformed into a prosperous industrial city on the model of Lowell and Holyoke. The leaders of Derby envisaged a bustling city with churches, parks, and libraries, where mills and factories would employ large numbers of people.

In 1864, the men listed above brought their petition for the dam before the state legislature. Once again, the industrialists were opposed by the New Milford shad fishermen, who feared that shad and fishing boats would not be able to pass the dam on their way upriver. William E. Downes brought in N.W. Foster, a Maine State Fish Commissioner, who presented to the Connecticut Legislature a model of a weir which would allow shad to pass a high dam (5th Report of the Fish Commissioners, 25). The charter was granted, with the provision that a fish weir and canal locks be included in the plan.

The fishway over the Ousatonic Water Power Company Dam was planned by N.W. Foster, Esq. in 1864, using for the first time in the United States, the new invention of Mr. James Smith of Deanstone, Scotland (Hudson et al. 1871, 25). The intent of the fishway was to breed and cultivate shad, in the manner in which salmon were successfully cultivated on other waterways.

Construction of the Ousatonic Company Dam

In December of 1866, the Ousatonic Water Company was organized, with a cash capital of \$322,500 (Orcutt and Beardsley 1880, 391). Edward N. Shelton was president, William E. Downes vice president, and D.S. Brinsmade secretary.

William E. Worthen of New York drew up the plans, and Henry T. Potter was appointed Engineer and Superintendent. Potter was an experienced engineer who had worked in Rhode Island and Connecticut. His experience in dam building was judged to be very valuable since there were similar conditions at the Derby site. He had built three large dams on the Shetucket River, including Ponemah Mills at Norwich, Conn., and had experienced the difficulties of building dams on poor gravel foundations (Chandler 1910, 72). Potter later became one of the first members of the Connecticut State Board of Engineers.

Construction of the dam began July 17, 1867, and lasted three years. The labor was carried out primarily by Irish immigrants. The construction of the dam was a difficult and frequently interrupted process. The river current and the tide made it necessary for coffer dams to be built around the work area to keep it dry. These coffer dams were made of planks backed with earth, and pumps were used to drain the enclosed space. Potter discovered that the stratum of rock at the river bed dipped too steeply to build the foundation as originally planned. He had sheet pilings driven into the gravel over the rock, the ends of which were encased in the stonework of the foundation (Leffel 1874, 29).

Freshets interrupted work in August and September of 1867, once in 1868, and in June of 1869. On October 4, 1869, another freshet swept away about 160 feet of the nearly completed dam. The coffers could not be restored until the following July. To remove the

water from the coffer below the dam, Potter had to create a special pump, which was "48 feet long, 4 feet wide and 12 inches high, with buckets or elevators attached to belts," powered by turbine wheels. The pump moved 5000 gallons of water per minute. It was found that the freshet had cut down the river bed south of the dam, and the cavity (1/2 acre in area and 20 feet deep) was filled with rocks before foundation was laid on top (ibid. 30-31).

The final capstone of the dam was laid October 5, 1870, and October 10 the event was celebrated in Derby with a military parade and speeches by the Governor of Connecticut, the Mayor of New Haven, the President of the Ousatonic Water Company, Edward N. Shelton, and others. It was considered by the participants to be a landmark event in the history of the district and the state. The names of the industrialists who had promoted and capitalized the venture, as well as Henry Potter, were inscribed in stone on the Shelton abutment of the dam.

The dam's capacity was estimated at 2500 horse power for 12 hours a day. When completed, the dam measured 637 feet between abutments. The abutments measured 175 feet in total length. Its arc was that of a circle with a radius of 2000 feet. It was constructed of solid masonry, the entire structure equaling an estimated 451,000 cubic feet. The abutments were "20 feet at the base, eight feet at the top, and from 25 to 32 feet in height; the whole of the masonry being capped with granite blocks [eight feet long by one foot thick] from Maine" (Orcutt and Beardsley 1880, 405). A horizontal apron extended 24 feet on the downstream side. The apron was described by engineer James Leffel as:

composed of timber and concrete, and having 10-inch sills extending 8 feet into the stone-work of the dam. These sills are imbedded in concrete, and a second course of timbers of the same thickness are bolted to them at right angles. All the spaces are filled with concrete, and the surface of the apron is then laid, consisting of timbers a foot square, lying close together in the same direction as the lower sills, and strongly bolted to the timbers underneath. (Leffel 1874, 31)

At each end of the dam, a tall abutment (37 feet high) allowed the water to pass into a canal through wooden gateways eight feet by eight feet. The abutment on the west (Shelton) side contained five gates, constructed of bolted eight inch by eight inch oak planks. According to Leffel, there were two-inch thick pillars of solid stone between these gates, although in 1982 the gates were recorded as 7 1/2 feet high by 8 1/2 feet wide, embedded in a substructure of rubble masonry, dry laid masonry and masonry laid in mortar which appears to be unaltered (de Brigard 1982, 2). The Shelton Canal itself was walled with dry rubble masonry and was 60 feet wide and 14 feet deep, with an overflow of 150 feet near the dam (Leffel 1874, 31). The spillway, perpendicular to the abutment, is 135 feet long (de Brigard 1982, 2).

The east (Derby) abutment contained three wood gates, eight feet square (6 1/2 feet high by eight feet wide in 1982). This side did not have a spillway, and the Derby Canal was narrower and shorter than Shelton's.

An early depiction of the completed project was illustrated by Leffel in 1874 (Figure

1). Orcutt and Beardsley's 1880 engraving also shows a small wooden gatehouse above the Shelton abutment (Figure 2). The Derby abutment is not visible in the illustration, but there may have been a gatehouse located there as well.

Construction of the Canals and Weirs

The Shelton and Derby Canals were built concurrently with the dam, so that the dam's power could be utilized immediately upon its completion. The Shelton Canal was the longer and more structurally complicated of the two. It was 5,385 feet long at completion, with 2 locks. The canal is divided into two sections by the lower set of locks. The upper section has remained relatively unchanged since the 1870's.

The guard lock is adjacent and attached to the gatehouse abutment. It is constructed of masonry and is 16.5 feet wide and 70 feet long. The original gates were all wood.

The lift locks are located approximately 1600 feet downstream from the guard lock, near the point where Curtiss Brook enters the canal. The locks consist of two chambers, each 70 feet long and 17.5 feet wide. The upper lift lock has a drop of 11 feet, the lower 9.5 feet (Northeast Utilities 1983).

The upper section, between the two locks, was designed for transportation use by the New Milford fishermen and others. Its average width was 80 feet, and its depth around ten feet. Because the land along the upper canal was too steep and the space between the canal and the river too narrow for factories, the Ousatonic Water Co. used the area only for a recreational park (now Riverside Park) and as a gravel source (Northeast Utilities 1983,E-32).

The lower section of the canal was narrower (varying in width between 35 and 80 feet), and was designed for industrial power use. It was slightly narrower and shallower at its southern end. Canal Street, which runs between the canal and the river, was built simultaneously with the Shelton Canal.

An 1867 map (S.W. Searl) shows the canal built as far south as Bridge Street (Figure 3). In December 1868, the Ousatonic Water Company obtained the right to dig the canal across the Turnpike, and an 1868 map (F.W. Beers) shows a section from Bridge Street to a block past the Turnpike marked with dotted lines. Upon the completion of the dam, the Shelton Canal ran south along Canal Street, parallel to the river, to Wharf Street. An 1893 map (D.H. Hurd and Co.) shows the end section, between Cornell and Wharf Streets, as a pool, about 100 feet wide (Figure 4). Bridges crossed the canal at Bridge Street and Cornell Street.

Also located at the head of the Shelton Canal was the promised fish weir. Designed by Foster, it was "the first fishway of any note yet built" in Conn. (5th Fish Commiss. Rept., 25). The Connecticut Fish Commissioners Report of 1871 described it in detail:

It runs down the inner side of the east wall of the canal. The crest of this east wall is one foot lower than the crest of the dam, and the surplus water passes

over it into the river. The extreme length of the fish-way is two hundred feet. From the upper end it extends down in a straight course for about 180 feet; thence turning at right angles it extends about 20 feet more into the river. The ascent is a trifle less than one foot in twelve. The depth inside is three feet nine inches. It is divided into 22 pools, each of which is 8 feet wide and 9 feet long in the clear. The bulk-heads or partitions separating one part from another, are placed at an angle of 60 degrees with the sides, and a clear space of 24 inches is left between the end of the bulk-head and the side of the fish-way, for the free flow of water. The average depth of water ponded is about 18 inches. The water enters the top of the fish-way through an aperture 18 inches wide by 30 inches high, cut on its west side, through the heavy masonry near the eastern head-gate wall. Its lower line or sill is about 4 feet below the crest of the dam. It is closed by a small sliding gate, opened and adjusted to any height by means of an iron rod attached to its top and extending up through the masonry to the top of the wall. (Fish Comm. Rpt., 25-26)

The Fish Commissioners commended the Ousatonic Water Co., which had spent about \$1900 to build the weir, for their "liberality and good faith" (5th Fish Comm. Rpt., 27).

The Derby Canal was 2,135 feet long upon completion. It ends in a rubble masonry wasteway dam, 70 feet long and 14 feet high, near the edge of the Birmingham Cemetery. The main portion of the canal is about 40 feet wide and nine to ten feet deep (Northeast Utilities, 1983 E-29).

Alterations to the Dam and Canals

The most important of the changes made in the structure and appearance of the dam and canals were made before the turn of the century. After three years of difficulties in building the dam, Henry Potter declined to take further responsibility for it, and D.S. Brinsmade, the secretary of the Ousatonic Water Co., took over as Engineer for subsequent repairs and renovations.

In 1883, 1.5 foot high wooden flashboards were installed along the top of the capstones.

In 1890, the Derby side of the dam was reconstructed. On this side, a wing wall, 70 feet long, extends upstream from an ashlar masonry abutment, and the gates are in this wall.

In the spring of 1891, approximately 210 feet of the dam were swept away from the Derby side. Brinsmade directed repairs that summer. The breached section was reconstructed, and the dam was lengthened to 686 feet between abutments. The horizontal apron was replaced or built up along the entire length of the dam, making the new apron 43 feet, six inches wide.

The downstream portion of this apron was supported by a rock-filled timber

cribbing. The toe was protected by three-inch plank sheeting just upstream from the last foot-square horizontal waters, which in turn, were laterally supported by piles driven 24" on centers. The entire surface of the apron was then covered with timbers and 2 layers of planking well anchored to masonry, starting just under the capstone and extending at a 1-1/3 to 1 slope, approximately 23 feet and thence through an arc of about 38-feet radius for another 31 feet to the toe. Apparently, the new portion, built monolithically and of larger stone than the old one, also had a vertical upstream face. (Northeast Utilities 1983, E-26)

At some time between 1890 and 1896, the original wooden gatehouses were replaced with single story brick structures. The Shelton gatehouse is the larger of the two, approximately 55 feet, 6 inches long, 18 feet wide, and 12 feet high. It has a wood-framed pitched roof, five feet high, originally slate, and a slight reveal along the eaves. Five windows were evenly spaced along the long walls, and a door faces the dam. The Derby gatehouse is similar, but smaller, 32 feet long by 14 feet wide. These structures housed hand wheel operated machinery which controlled the gates (deBrigard 1982, 2; and Northeast Utilities 1983, E-29).

The only twentieth century changes to the canal gatehouses were the motorization of the nineteenth century machinery inside, the replacing of the slate roofs, and the boarding up of the windows due to vandalism.

Erosion and water levels steadily wore down the apron of the dam. In 1919-1920, the Stevenson Dam and Hydroelectric Plant were erected about six miles upriver, and their operations also contributed to the wear on the dam. The toe of the dam was inspected in 1943. In 1948, maintenance of the wooden apron was found to be overly expensive, and the Connecticut Light and Power Co. began to replace the wood planking with a nine inch layer of concrete. 3,138 square feet of the apron were patched with concrete, and a 2,290 square foot strip of concrete replaced both layers of planking on the Derby side. Over the next four years, additional sections were patched. In 1952, C.W. Blakeslee and Sons received a contract and completed the job. The Hydraulic Engineer for the entire repair was C.M. MacWilliam of Connecticut Light and Power (de Brigard 1982, 2, and Northeast Utilities 1983, E-27).

The few modifications of the upper section of the Shelton Canal were associated with the Berkshire Branch of the N.Y., N.H. and H. Railroad. The original tracks were installed along the canal, on the opposite side from the river, in 1888. The tracks run parallel to the river, past the dam, and cross the canal south of Bridge Street. After World War II, the railroad bed was widened and a vertical concrete retaining wall was erected along the west side of the canal.

The locks of the upper canal were maintained until 1973. All of the gates of the locks were replaced between 1955 and 1963. The locks ceased to operate in 1973 due to lack of traffic on the canal.

Along the lower section of the canal, the western masonry walls from Bridge Street northward were buried when the railroad extended the slope of its embankments after

World War II. In 1948, the section of the canal south of Bridge Street was filled in. Before the fill was moved in, a 48 inch diameter metal pipe was installed along the east wall to conduct the water. Also, two 72 inch diameter metal pipes were laid down at the Brook Street crossing, and a roadway was built over them to replace an old wooden bridge.

In 1957, the section between Maple Street and the southern boundary of the Apex Tool Co. lot (about half way between Wooster and Beard Streets) was filled in, with a 72 inch diameter corrugated metal pipe installed along the east wall. The filled space was paved and used for parking by Better Packager, Inc. and the Apex Tool Co.. The same was done to sections north of Bridge Street in 1964 and 1972. In 1971-72, the Connecticut DOT replaced the Berlin Construction Co. iron truss bridge across the Housatonic, and in the process filled in the remaining section of the canal at Bridge Street.

In 1982, there were only two 300 foot long sections of the lower canal left open. One of these ran between the Brook Street and Maple Street fills.

The only modification of the Derby Canal was made in 1952. The Shelton Canal Co. and the State of Connecticut replaced a wood bridge and a railway crossing near the intersection of the canal and Housatonic Avenue with a roadway. Four eight foot diameter corrugated metal pipes, 316 feet long, now conduct the water beneath this road.

The Effect of the Housatonic Water Power Company Dam and Canals

The significance of the Housatonic dam and its associated canals lies in the effect they had on the industry of Derby and Shelton, and on the industry of the Housatonic River Valley as a whole. The effects of the dam were almost precisely those that had been predicted in 1864. Business expanded in Derby, the manufacturing borough of Shelton was created across the river, and the New Milford shad fishing industry collapsed.

Within 13 years, Shelton was metamorphosed from an agricultural community to an industrial one. When the Borough of Shelton was incorporated in 1882, there were at least 12 operating factories, employing over 1000 persons, as well as assorted retail and service concerns. The rapid change was due almost entirely to the workings of the Ousatonic Water Co.. By 1867, the year that construction of the dam began, the company had bought up all of the lots on either side of the Shelton Canal (1867, 1868 maps). The directors of the company leased these lots to carefully selected companies. Many of these were manufacturing concerns in which individual directors, or their relatives, had interests. Others were selected to provide variety, so that the new town would not be dependent on a single industry. As soon as the dam was finished, construction began. With the exception of the stone factory, all of the buildings were brick and their design standard for the time.

The first factory in Shelton was built by Nelson H. Downs. In 1871, the buildings of the Derby Gas works, Wilkinson Brothers and Co. (paper products), and the Tack and Bolt Factory (a branch of the Tack Co. of Birmingham) were erected. A year later, Sharon Bassett's carriage factory and Edwin Wooster's stone factory were built. They were joined by Radcliffe Bros. (hosiery) in 1874, and Wilcox and Howe (carriage hardware) and the Star Pin Co. in 1875. The factory of the Derby Silver Co. was built in 1877, where Edwin L. Britton originated the production of Britannia silver plated ware (Figure 5). By 1880, the

industries of Shelton included the Birmingham Corset Co. (operated by J.W. Birdseye & Co. in Nelson H. Downs' factory), the Shelton Water Co., the Norway Iron Bolt works, and several smaller concerns (Orcutt & Beardsley).

By 1896, there were about 25 mills and factories operating in Shelton, employing over 1640 persons (Figures 6 and 7 illustrate the land ownership along the canal. The Ousatonic Water Co. had increased their capital to \$500,000. At this time Shelton's canal strip was the site of the Silver Plate Cutlery Co. (factory built 1885) (Figure 8); the Shelton Co. (tacks, bolts, and small nails); J.G. Griffin, a horn button manufacturer which moved into the factory of Shelton Brass Hardware; and the Williams Typewriter Co., which moved into Shelton from Newark, NJ in 1894; as well as many of the previously listed companies (Gillespie 1896).

Those buildings which were still standing in 1983 were the Wilkinson Paper Co., the Star Pin Co., Wilcox and Howe, Norway Iron Bolt, the Derby Silver Co., Shelton Co. Bolt-works, Shelton Tack Co., and Radcliffe Mills (Northeast Utilities 1983, E-33).

Industry increased in Birmingham as well, although not as rapidly. The Derby Canal was not utilized for industry until 1890, when the Derby Gas Co. constructed an electric light plant at its lower end. This plant had two 200-horse power water wheels, as well as a steam engine (Northeast Utilities 1983, E-30). In 1896, the largest employer in Derby was the Sterling Co., manufacturers of organs and pianos, which employed 315 men. Also important were the Birmingham Iron Foundry (Figure 9), A.H. and C.B. Allings' Paugasset Mills (hosiery), located in the old Anson G. Phelps copper mill, Royal N. Bassett Co. (corsets) and the Howe Manufacturing Co. (pins).

In 1897-98, the Graham and Brady Manufacturing Companies built factories on the Derby Canal, north of the electric plant, and the Driggs Seabury Co. negotiated a water lease for one lot. In 1915, Maxim Munitions bought the lot between the Graham and Brady Cos.. Few, if any, of the nineteenth century buildings remain in their original state today.

A more detailed history of the factories along the Derby and Shelton Canals is Kevin O'Mara's 1979 study, Valley Downtowns: A Historical Perspective.

The success of the dam was also the success of the Ousatonic Water Co., which has lasted as long as the dam. It became the Ousatonic Water Power Co. some time before 1915, and later the Shelton Canal Co., under which name it operates today. For the founders of the company, the venture was a great success. Their positions in the community were reinforced, their businesses expanded, and the streets of Shelton were named in their honor.

The success of the Derby industrialists was, despite their efforts, at the expense of the fishermen of New Milford. Less than a year after its installation, the fish-way in the Shelton Canal was reported by the Connecticut State Fish Commissioners to be completely ineffective. Despite alterations, the shad refused to swim up it (6th Fish Comm. Rept, 1872, 28-29). In the following years it was necessary for the Fish Commissioners to impose fines for shad fishing below the dam, where the shad gathered. Shad counts shrank, and by

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the turn of the century the shad had disappeared from the Housatonic River altogether. In 1929, the Ousatonic Water Power Co. obtained a release from the state legislature regarding its obligation to maintain the fish-way.

The use of the upper Shelton Canal and locks declined along with the fishing industry. As railroads connected Derby to other points along the Housatonic, as well as New Haven and New York City by the 1870's, the upper canal and its locks were obsolete for most commercial travel even before they were built. In 1973, traffic was discontinued, as only one or two boats per year were traveling through the locks.

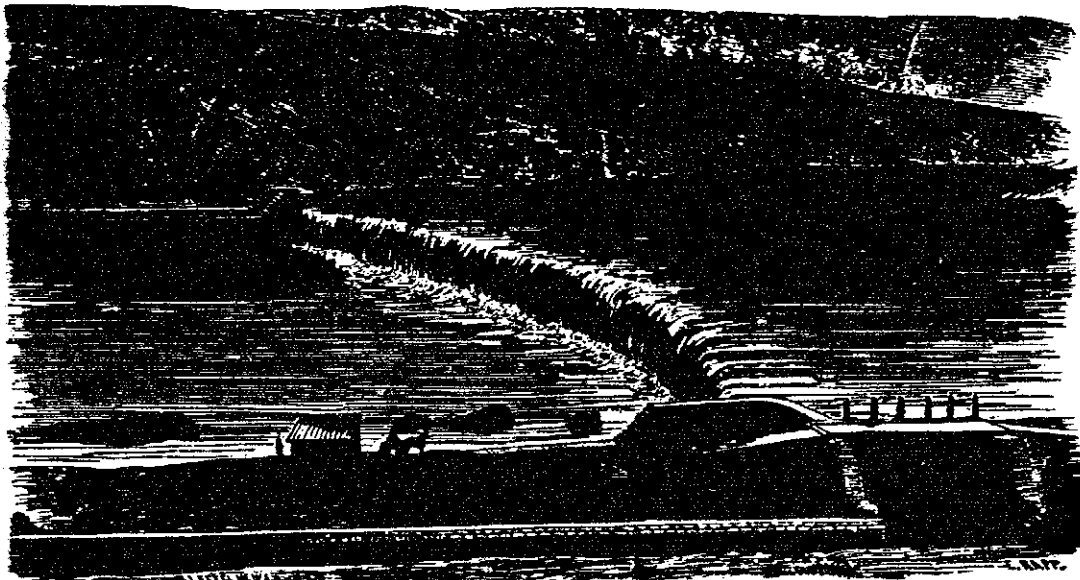
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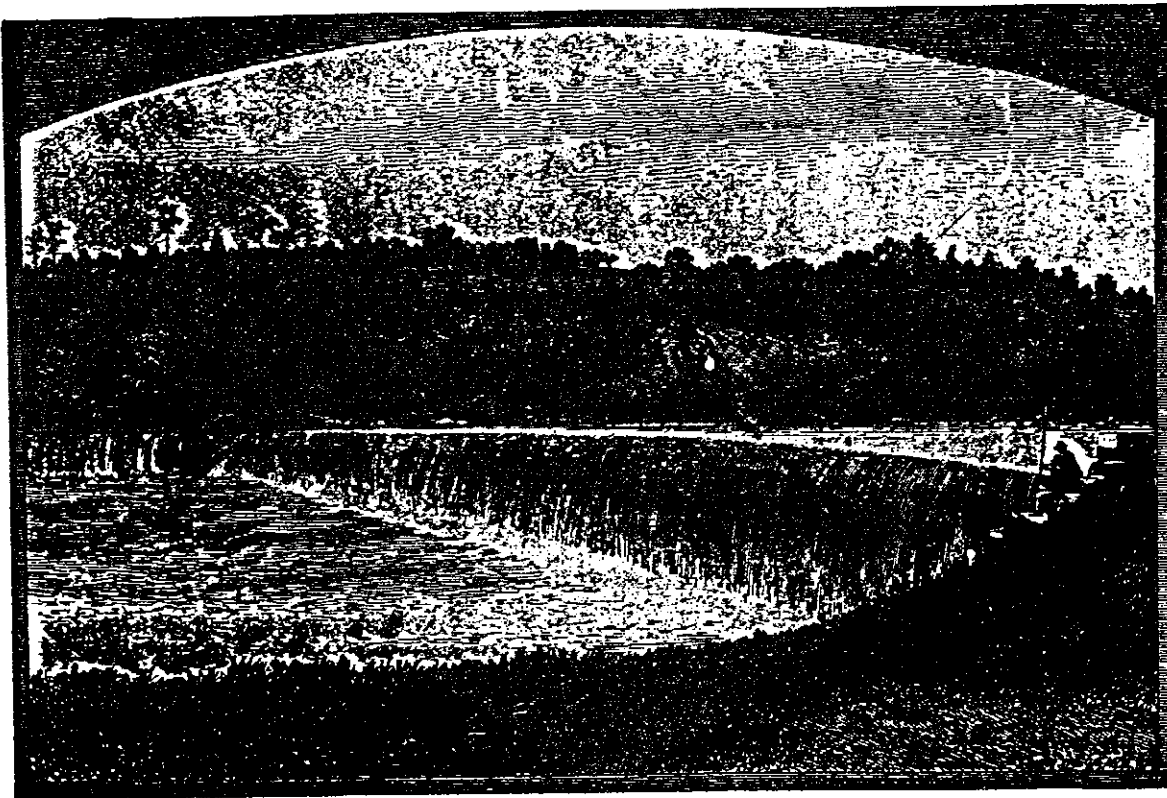
Figure 1
The Housatonic Dam, 1874
(Leffel, 1874)



THE HOUSATONIC DAM, BIRMINGHAM, CONNECTICUT.

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Figure 2
The Ousatonic Dam, 1880
(Orcutt & Bearsley, 1880)



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Figure 3
Map of Shelton & Derby, 1893
(D.H. Hurd, 1893)

